

The Parts of a Tree

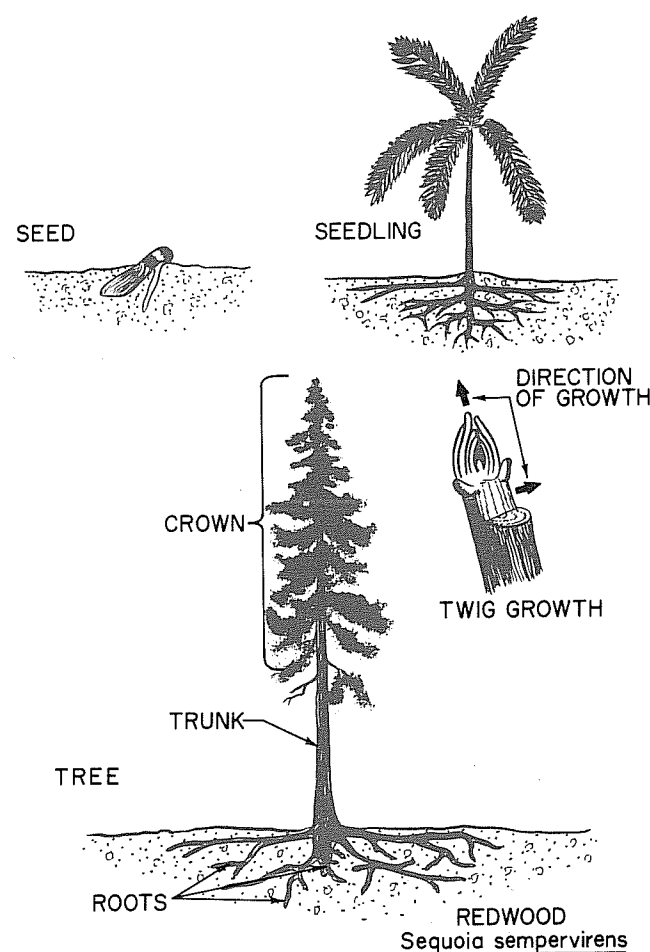


Fig. 50-1. Most trees grow from seeds. The largest American tree (redwood) is produced by a very small seed.

Most trees develop from seeds. Trees produce countless numbers of seeds each year. See Fig. 50-1. One tree produces enough seeds in ten years to cover the entire earth with trees. However, not all seeds survive to produce a tree. Unfavorable growing conditions, diseases, and animals destroy many seeds. Of those that begin growth, less than 1% actually grow into commercially valuable trees.

Each kind of tree needs certain conditions to grow. Some seeds, for example, need a wintering period. During this period the seeds create chemicals for germination. **Germination** is the initial growth of a seed into a plant. As the seeds continue to grow, small **seedlings** (young trees) develop.

Trees show a general growth pattern of **up and out**. The trees become taller as new buds produce growth. This growth takes place at the tip of each branch. Such growth accounts for the expansion of the upper, branching portions of the tree.

Several factors affect the continued growth of trees. Moisture, light, temperature, minerals, gases, and gravity are important factors. Together these factors make up the tree's total environment.

Environments differ greatly throughout the world. This makes the forests different. Zebra-wood, for example, grows only in parts of Africa. Giant redwoods can be grown only in northern California and Oregon. Even within the boundaries of the United States, the forests are quite different. The forests of the Northwest, for example, are not at all like those of the South. See Fig. 50-2.

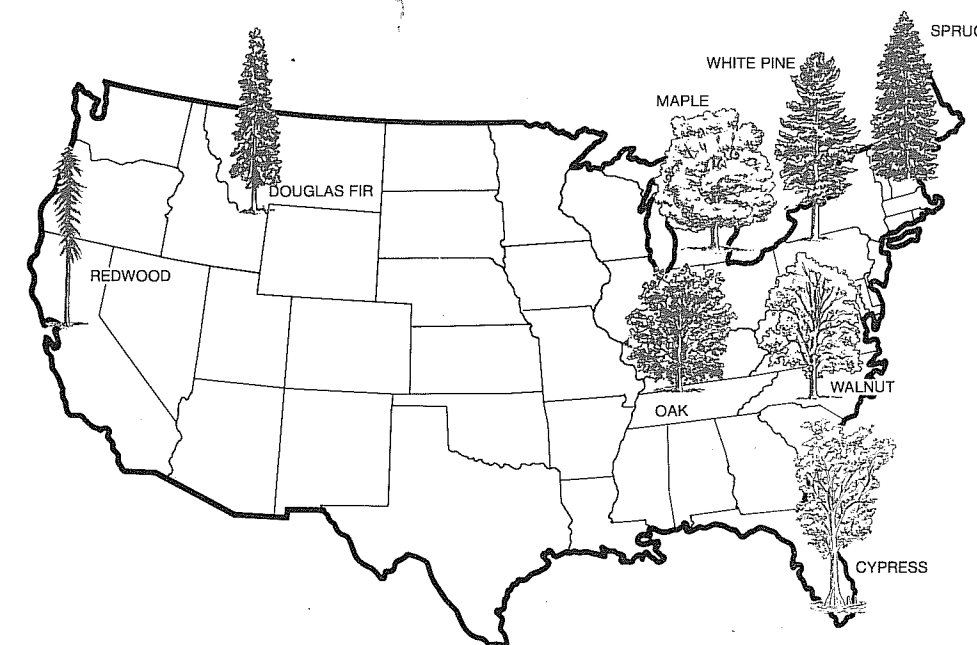


Fig. 50-2. Many kinds of trees will grow wherever they are planted. Some trees, however, grow more widely in certain sections of our country.

Forest researchers are constantly looking for ways to increase the production of wood. In some cases they have actually developed new kinds of trees. See Fig. 50-3. These trees sometimes grow more rapidly than trees native to the region.

The Inside of a Tree

Like all living things, a tree is composed of cells. As the tree grows, it constantly produces new cells. When the cells die, they become the woody mass of the tree.

Leaf cells contain **chloroplasts**, where sunlight is converted into chemical energy. This process is called **photosynthesis**. During this process, carbon dioxide is taken from the air. The carbon dioxide is combined with water and minerals from the root system. With proper sunlight these materials are converted into

Fig. 50-3. This small seedling is being tested to determine its hardness. Tests like these help researchers identify better, faster-growing trees.

Weyerhaeuser

